

Fact Sheet

The Company

Q. How long has BioBased Insulation® been around?

A. BioBased Technologies® is focused on developing and marketing sustainable solutions for the polyurethane industry and has been in existence since 2003. Products offered by BioBased Technologies® include Agrol®, bio-based polyols; and BioBased Insulation®, bio-based spray polyurethane foam insulation and sealants available from a network of approved contractors.

Polyurethane spray foam has been around for more than 30 years. BioBased Insulation® entered the market in 2003. Our first product, BioBased 501w®, was launched that same year. Our focus is to develop a family of insulation products that perform well and have additional sustainable attributes, such as incorporating renewable ingredients or ingredients that have less of an impact on the environment.

Q. So what makes BioBased Insulation® different from other spray foam insulation companies?

A. Our goal is to reduce dependence on petroleum products first by correctly sealing buildings to make them more energy efficient. We also utilize the latest technology to incorporate renewable ingredients and ingredients that have less of an impact on the environment into our products without sacrificing performance.

The Products

Q. What is BioBased 501w®?

A. BioBased 501w® is an open-cell, semi-rigid foam insulation. It is sprayed-in-place as a two-part polyurethane. Once applied, it expands to 100 times its original size and provides a sealed, thermal building envelope. BioBased 501w®, utilizes annually renewable resources to replace a portion of the petroleum in the product, and is water-blown.

Q. What is BioBased® 502?

A. BioBased® 502 is a second-generation open cell product. It has been available in Europe since it was launched in 2008, and on a limited basis in the United States until 2010. Like its predecessor, it expands 100 times its original size to provide a sealed, thermal building envelope. It incorporates Agrol® as the source of its bio-content and is water-blown.

Q. What is 2001 NB?

A. 2001 NB is a non bio-based 2.0 lb spray foam insulation. It is applied using 245fa, a non-ozone depleting blowing agent. Because it is a closed cell insulation it serves as an air barrier and a vapor retarder when installed at 3.5 inches. It expands about 30 times in size when installed.

Q. What is Soy Seal® HD and Soy Seal® XD?

A. Soy Seal® HD and Soy Seal® XD are bio-based spray polyurethane foam sealants that can be used in a variety of industrial, agricultural and commercial applications. Both products incorporate Agrol® as the source of their bio-content and both are water-blown. Soy Seal® HD is a 3.0 pound, closed cell sealant. Soy Seal® XD is a 6.0 lb, closed cell sealant.

Q. What is the R-Value of BioBased Insulation® per inch?

A. BioBased 501w® and BioBased® 502 each have an R-value of 13 when installed at 3.5 inches. 2001 NB both has an R-value 18 at 3.5 inches. For a full listing of R-values at various depths, please refer to the product specifications sheets posted at biobased.net.

Q. What is the difference between open-cell and closed-cell foams?

A. Both open cell and closed cell foams stop the movement of air and slow down the transfer of heat. Closed-cell foams have low vapor permeance due to their cell structure. These foams, depending on thickness, may be considered a vapor retarder but not a vapor barrier. Closed-cell foams also have a high compressive strength which allows them

Fact Sheet (continued)

to be used for exterior applications. In climate zones 6-8 a vapor retarder system may be required on the warm side of the insulation relative to the design of the wall or ceiling system.

Open-cell foam should never be used for exterior applications. Open-cell foams are more cost effective per unit of R-value than closed-cell foams but do not provide the structural contribution to a building that closed-cell foams do.

Please work with your local independent BioBased Insulation® approved contractor to determine which product works best for your specific application.

Q. Will BioBased Insulation® burn?

A. All BioBased Insulation® products are Class I fire rated. They will char but will not sustain a flame.

Q. Does BioBased Insulation® support bacteria or fungal growth?

A. No, BioBased Insulation® products are inert substances that do not support mold growth.

Q. Does BioBased Insulation® contain formaldehyde?

A. There is no formaldehyde added during the manufacturing process.

Q. Since BioBased Insulation® is made by incorporating renewable, natural ingredients into the product, do rodents and insects eat the insulation?

A. No. BioBased Insulation® is an inert substance and provides no food value for rodents and insects.

Q. Do the BioBased Insulation® B-Components contain raw materials derived from genetically modified (GM) soybeans?

A. Yes. All of our soy oils come from soybean processors who purchase soybeans on the open market. According to USDA figures for 2007, 91% of all soybeans produced in the United States are genetically modified (GM) for herbicide resistance.

The main benefits of using GM soybeans are that they are readily available and affordable, because they cost farmers less to grow. There are environmental benefits also. Since farmers of GM soybeans use conservation tillage practices, it takes less fuel, produces less carbon dioxide emissions and creates less soil erosion to grow the crop than it would to grow non-modified soybeans.

Q. What's the bio-content percentage of your products?

A. We have products that range from 3% bio-content **in the finished foam** (based on ASTM D6866) to 15% in the finished foam. Each product's bio-content percentage is reported on the technical data sheet.

Q. Will your products cause an allergic reaction in someone with an allergy to soybeans?

A. Although we are not medical professionals, it is our understanding that actually ingesting a food is what causes most food allergy reactions. BioBased Technologies® products contain polyols that are made from high-grade soy oil which is virtually devoid of protein. The oil is then chemically modified when it becomes a polyol. When applying spray foam insulation, the soy polyols are further modified by the chemical reaction that occurs in order to form a polyurethane plastic. This polyurethane foam has a drastically different chemical makeup than the original soy protein which causes allergic reactions. Building codes require that polyurethane foam plastic be installed behind gypsum wall board. Therefore the potential for an individual who suffers from soy allergies to come in direct contact with the foam while in a building insulated with BioBased Insulation® and subsequently have an allergic reaction is minimal at best. If you have additional questions or concerns about possible soy allergies, we recommend that you contact your physician or allergist.

Product Benefits

Q. What makes BioBased Insulation® so effective?

A. BioBased Insulation® is effective in air sealing and insulating because it is applied as a liquid and expands multiple times its original liquid size in seconds. As it expands, it conforms and fills cavities and voids to create a sealed thermal envelope. BioBased Insulation® creates a highly-effective seal against air infiltration, the number one source of energy loss in a structure. This insulation adheres to any clean, dry surface and will not sag or settle.



Q. How does BioBased Insulation® save consumers money?

A. While the initial cost of installing BioBased Insulation® may be higher than traditional insulation, the savings in monthly utility bills will make up the cost difference. When paired with other responsible building components, BioBased Insulation® can reduce monthly heating and cooling bills by up to 50% when compared with traditionally insulated homes.

Because BioBased Insulation® creates a continuous, sealed thermal envelope around your home or structure, in many cases with new construction or large retrofit projects, you also can save additional money by reducing the required size of the HVAC (heating and air conditioning) unit. You might also be able to reduce or eliminate the use of other building materials when you use foam such as soffit vents, ridge vents, attic ventilation fans, radiant barriers or vapor retarders.

Q. How does BioBased Insulation® control indoor air quality and comfort?

A. BioBased Insulation® provides a healthier, draft-free, indoor environment. Because BioBased Insulation® expands to fill cavities and voids, it seals the thermal envelope and will not sag or settle over time.

This sealed envelope gives the HVAC system full control over the amount and filtration of fresh air coming into the structure in addition to reducing drafts and temperature differences throughout the building. This helps to maintain good indoor air quality by blocking harmful outside irritants such as mold, pollen and other allergens. A sealed envelope can also reduce the amount of airborne noise pollution entering the home.

Q. How does BioBased Insulation® control moisture movement and condensation?

A. A significant cause of moisture issues in structures is the result of warm, moist air being exchanged with cold, dry air inside a wall cavity. This moisture can condense within the cavity and result in mold, mildew and rot. Because BioBased 501w®, BioBased® 502 and 2001 NB air seal, this moisture movement and subsequent condensation potential is greatly minimized.

Q. How long does BioBased Insulation® last?

A. Indefinitely. As an inert, thermoset plastic, BioBased Insulation® will maintain its properties throughout the life of the building.

Q. Does BioBased Insulation® have VOCs?

A. BioBased Insulation® products have low VOCs in the finished foam.

Q. Can BioBased Insulation® be used to qualify for LEED credits?

A. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. BioBased Insulation® has been used by builders in the past to qualify for LEED credits. Some of the LEED projects that have used BioBased Insulation® include Heifer International (platinum) in Little Rock, Ark., Evelyn Pease Tyner Interpretive Center, (platinum) in Glenview, Ill., Shangri La Gardens and Nature Center (platinum) in Orange, Texas; and the Treehouse Project in Studio City, Calif., a case study for Southern California Gas and a pilot project for a new equivalency tool between the USGBC's LEED For Homes and Build It Green's GreenPoint Program.

Installation

Q. Is spray foam insulation safe?

A. During application, applicators and other persons within a close proximity to the spray operation could be exposed to fumes and spills beyond OSHA and NIOSH requirements. Precautions should be made for applicators, helpers and building occupants to be protected from these fumes, mists and spills. This can be done by following simple safety guidelines.

Typically for the applicator this would include respirator, solvent-resistant gloves and protective clothing. The zone where protective equipment is required can vary depending on the amount of open space and free ventilation. For example on a roof top, outside of a few feet the fumes dissipate rapidly, while in an enclosed room, fumes and mists can build. Each job should be assessed and a safety plan developed specific to the application by the installer. Your BioBased Insulation® approved contractor is trained in proper safety procedures.



Fact Sheet (continued)

Q. Does BioBased Insulation® adhere to metal or wood studs?

A. BioBased Insulation® adheres well to almost any material, especially wood and steel studs.

Q. Can BioBased Insulation® be sprayed over electrical wiring?

A. BioBased Insulation® does not pose any issues with electrical wiring as long as the electrical wiring is installed per National Electric Code. Any overheating issues with BioBased Insulation® in regards to wiring would be directly related to improper installation of the circuit or the size of the wiring.

Q. What happens if the owners want to add an electrical outlet once BioBased Insulation® is installed?

A. A certified electrical contractor can pull wire through BioBased Insulation®. For wires that may be moved frequently, such as home theater wiring, ENT conduit should be placed in the wall before the insulation is installed.

Q. Are there any compatibility concerns with other building materials?

A. BioBased Insulation® is stable in the presence of most solvents found in binders, bituminous materials, wood preservatives and sealers. It is resistant to facers containing plasticizers, fuel, mineral oil, weak acid and weak bases, which are typically found in residential and commercial construction materials.

Q. How is BioBased Insulation® installed?

A. BioBased Insulation® is installed by independent approved contractors. Application takes place after the electrical, plumbing and mechanical systems are installed, but before sheetrock is started.

Q. Can homeowners install BioBased Insulation® themselves?

A. No, only trained professionals can install BioBased Insulation®. BioBased Insulation® trains its independent approved contractors to ensure that products are properly installed.

Q. How can I purchase BioBased Insulation® for my home?

A. BioBased Insulation® is rapidly expanding its global network of independent approved contractors. There are currently 130 independent approved contractors across the country and in several foreign countries. If you are interested in having our insulation installed in a home or business, call BioBased Insulation® at 800.803.5189 to find the independent approved contractor nearest you.

Q. How much does it cost to install?

A. Because labor and overhead costs vary across the United States, it's best to contact the local approved contractor in your area to get an estimate. As a rule of thumb, spray foam insulation generally costs between two and three times more than traditional insulation.



Division of BioBased Technologies®